

**LEAK DETECTION AND REPAIR (LDAR) PROGRAM GUIDELINES**

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# LEAK DETECTION AND REPAIR (LDAR) PROGRAM GUIDELINES

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The Bureau of Air Quality's Modelling Section has established a guideline entitled "Air Toxic Modelling Procedures" to assist in ensuring acceptable modelling strategies. This procedure states that equipment leaks from pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, flanges and connectors do not have to be considered, at this time, in determining compliance with Standard Number 8 if an acceptable preventative maintenance program is in place. This preventative maintenance program cannot be implemented to invalidate a previously modeled exceedance of Standard Number 8.

Certain criteria must be met to qualify as an acceptable preventative maintenance program. The following guideline establishes minimum criteria for an acceptable leak detection and repair program. These minimum criteria are applicable to sources subject to Standard Number 8 and do not supersede any Federal requirements set forth in the New Source Performance Standards (NSPS) or National Emission Standards for Hazardous Air Pollutants (NESHAPS) or any other applicable State or Federal requirement. A facility should submit a written request to the Bureau of Air Quality if a facility wants to use this LDAR program. Use of the LDAR program will only eliminate the consideration of equipment leaks in its compliance demonstration for Standard No. 8. Determination of acceptability, on a case-by-case basis, by the Bureau of Air quality will be issued in writing.

- 1.0 **Affected Sources:** Each pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, flange and connector that contains or contacts a fluid or gas that is at least 10% by weight of one or a combination of any air toxics listed in Standard No. 8 is an affected source.
- 2.0 **Equipment Leak:** A leak is defined as greater than or equal to 10,000 ppmv as methane, for organic compounds, as determined by EPA Reference Method 21 and 500 ppmv as the applicable air toxic for inorganic compounds.
- 3.0 **Minimum Requirements for an Acceptable Organic LDAR Program:**
  1. Each affected source must be screened initially using Method 21. Sources that are unsafe to monitor need not be screened, but documentation must be provided to substantiate the unsafe nature.
  2. Monthly visual inspections must be performed on each affected source for signs of leakage (e.g. dripping liquid, spraying, misting, clouding, ice formation, distinctive odors, etc.).
  3. Monitoring of each affected source must be conducted quarterly using Method 21.
  4. If no leaks are detected for an affected source for 2 consecutive quarters, annual monitoring may be implemented.

5. When a leak is detected, revert to quarterly monitoring until conditions of Section 3.4 are met.
6. Any leak detected during any Method 21 test or any visual inspection must meet the repair program requirements of Section 6.0.

**4.0 Initial Screening: Screening tests must be conducted initially and include:**

1. The type of affected source (e.g. pump, compressor, etc.).
2. Site specific ID of each affected source.
3. Date of the Method 21 test.
4. Type of Method 21 detector:
5. Calibration results of Method 21 detector:
6. Screening results in ppmv.

**5.0 Periodic Monitoring: Monitoring reports must be submitted annually to the Bureau of Air Quality no later than February 15 of the following year and include:**

1. Type of leaking affected source (e.g. compressor, relief valve, etc.).
2. Site specific ID of leaking affected source.
3. Date of Method 21 test or visual inspection that leak was detected.
4. Type of Method 21 detector, if applicable.
5. Calibration results of the Method 21 detector, if applicable.
6. Monitoring results in ppmv, if applicable.
7. Date that the leaking affected source was repaired.
8. Name and title of person certifying the leak repair.

**6.0 Repair Program:**

1. Repair attempts will be started within five (5) working days of detection and completed within fifteen (15) days.
2. Repairs may be delayed beyond 15 days if:
  - a) A process shutdown is required to repair the leak. The leak will be repaired at the

next process shutdown, provided replacement/repair parts are available before re-start, or 6 months, whichever is less.

- b) The replacement equipment or repair equipment is not available within the 15 day period. The leak will be repaired as soon as possible after the fifteen day period but must be repaired within 6 months.
- c) The leak is in an inaccessible location or would be hazardous to repair, in which case it will be repaired at the next process shutdown.
- d) Repairs require the use of a dual mechanical seal system that includes a barrier fluid system, in which case the leak will be repaired within 6 months of detection.

3. Any affected source entitled to the repair delays specified in sections 2 a-d above, must, within 30 days of leak detection, submit to the Bureau of Air Quality a certified letter of explanation along with the projected repair date.

7.0 **Recordkeeping:** Records of the initial screening and each monthly visual and quarterly monitoring inspection must be kept on site for a period of 5 years and must be readily available for review by the Department upon request.

8.0 **Inorganic Compound Leaks:** LDAR programs for inorganic compounds will be reviewed and acceptability determined on a case by case basis. These programs should address the screening and sampling methods to be used, frequency of monitoring, etc.

9.0 **Notifications:** The Bureau of Air Quality must be notified at least 2 weeks in advance of any initial screening or quarterly monitoring so that a representative may be present.

10.0 **Alternative Leak Detection and Repair Program:** An alternative leak detection and repair program for sources using heat transfer fluids containing biphenyl may be implemented as specified in Sections 10.1 - 10.3. This alternative procedure is allowed because heat transfer fluids are normally circulated at high temperatures and because of its very low vapor pressure, biphenyl vapor leaks condense rapidly and are easily detected visually as a darkened liquid.

#### 10.1 **Inspection Program:**

- 1. Catalog and ID all pumps, control valves, block valves, relief devices and flanges. Sealless pumps and bellows control valves do not have to be included.
- 2. Visually inspect all pumps and control valves monthly.
- 3. Visually inspect block valves and relief devices semi-annually.
- 4. Visually inspect flanges and areas beneath and around flanges annually.
- 5. Indications of leaks noticed during any walk-by inspections or any other casual observations are also subject to the repair and reporting program requirements of Sections 10.2 and 10.3.

## **10.2 Repair Program:**

- 1. Repair attempts will be started within five (5) working days of detection and completed within fifteen (15) days.**
- 2. Repairs may be delayed beyond 15 days if:**
  - a) A process shutdown is required to repair the leak. The leak will be repaired at the next process shutdown, provided replacement/repair parts are available before re-start, or 6 months, whichever is less.**
  - b) The replacement equipment or repair equipment is not available within the 15 day period. The leak will be repaired as soon as possible after the fifteen day period but must be repaired within 6 months.**
  - c) The leak is in an inaccessible location or would be hazardous to repair, in which case it will be repaired at the next process shutdown.**
  - d) Repairs require the use of a dual mechanical seal system that includes a barrier fluid system, in which case the leak will be repaired within 6 months of detection.**
- 3. Any affected source entitled to the repair delays specified in sections a-d above, must, within 30 days of leak detection, submit to the Bureau of Air Quality a certified letter of explanation along with the projected repair date.**

## **10.3 Reporting Program: Annual reports must be submitted to the Bureau of Air Quality no later than February 15 of the following year and include:**

- 1. Type of leaking affected source (e.g. pump, relief valve, etc.)**
- 2. Site specific ID of leaking affected source.**
- 3. Date of inspection or date leak noticed.**
- 4. Date the leaking source was repaired.**
- 5. Name and title of person certifying the leak repair.**